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Attorney Docket: 852/48375
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant:	KONRAD WEGENER ET AL.		
Serial No.:	09/443,456	Group Art Unit:	3722
Filed:	NOVEMBER 19, 1999	Examiner:	W. BRIGGS
Title:	FORMING SYSTEM AND PROCESS		

APPEAL BRIEF

Commissioner for Patents
Washington, D.C. 20231

Sir:

The following Appeal Brief is submitted herewith in triplicate in accordance with 37 CFR § 1.192 along with the requisite fee of $320.00 as set forth in 37 CFR § 1.17(c).

Real Party In Interest

Schuler Pressen GmbH and Co. KG of Goeppingen, Germany.

Related Appeals and Interferences

None.

Status of Claims

The application as filed contained Claims 1-30.

Claims 1, 6, 19 and 27 have been amended. No claims have been cancelled or allowed.

Claims 1-30 (Appendix) are on appeal.

Status of Amendments

An amendment is being filed concurrently with the Appeal Brief directed solely to the § 112, ¶ 2 rejection.

Summary of the Invention

The present invention provides a system for forming workpieces by way of which, as a result of reduced expenditures with respect to material and development, an identical or better forming result can be achieved than by known forming systems. Furthermore, the largest possible amount of flexibility is to be achieved during the retooling, in that the adaptation to another product can take place as much as possible by reprogramming. (Specification, Page 2, lines 8-15.)

The present invention has achieved the foregoing by providing at least one machining device with a local energy feed for machining the workpieces as a separate station within the forming system. That is, the forming system has a machining device with a local energy feed so that the workpieces machined in the forming system can be subjected to an additional machining or a machining which replaces the previously required steps. Such a machining device has the advantage that it has a very low mass and, in addition, can be arranged on the existing forming system. Thereby, for the machining, it does not have to be moved in an oscillating manner and therefore not with a large consumption of energy. (Specification, Page 2, line 20 to Page 3, line 4.)

Although systems of this type were known, the workpieces produced thereby usually were sheet metal pieces, and the most varied forming processes

were used, such as deep-drawing, pressing, cutting or impressing. Since very large workpieces were usually produced, as a rule, very large forming tools were also required. The large masses of these tools had to be accelerated and braked during each working cycle or stroke of the forming system. On one hand, this disadvantageously required very large expenditures of material for producing the forming tools and, on the other hand, a very large amount of energy was required. (Specification, Page 1, lines 9-22.)

An even more serious problem was the very long development periods for the forming tools. For example, in the development of a motor vehicle, these development periods represented a very large fraction of the entire development time. Possible changes on the forming tools therefore disadvantageously lead to high cost expenditures. (Specification, Page 2, lines 1-6.)

Figure 1 (below) as well as Figures 2 and 3 illustrate a forming system 1 which has several forming stations 2 and is therefore also called a multi-station forming system. In a manner known per se, certain workpieces 5, (for example, a door of a motor vehicle) are produced from metal sheets which are fed to the forming system 1 in the form of metal sheet stacks from so-called blank loaders. The metal sheets 3 and the workpieces 4 successively travel through the forming stations 2 of the forming system 1 and are transported by transport devices 6 from one forming station 2 to the next forming station 2. The forming stations may, for example, be mechanical presses, hydraulic presses, other hydraulic devices or internal-high-pressure forming stations. Specification Page 6, lines 11-23.)

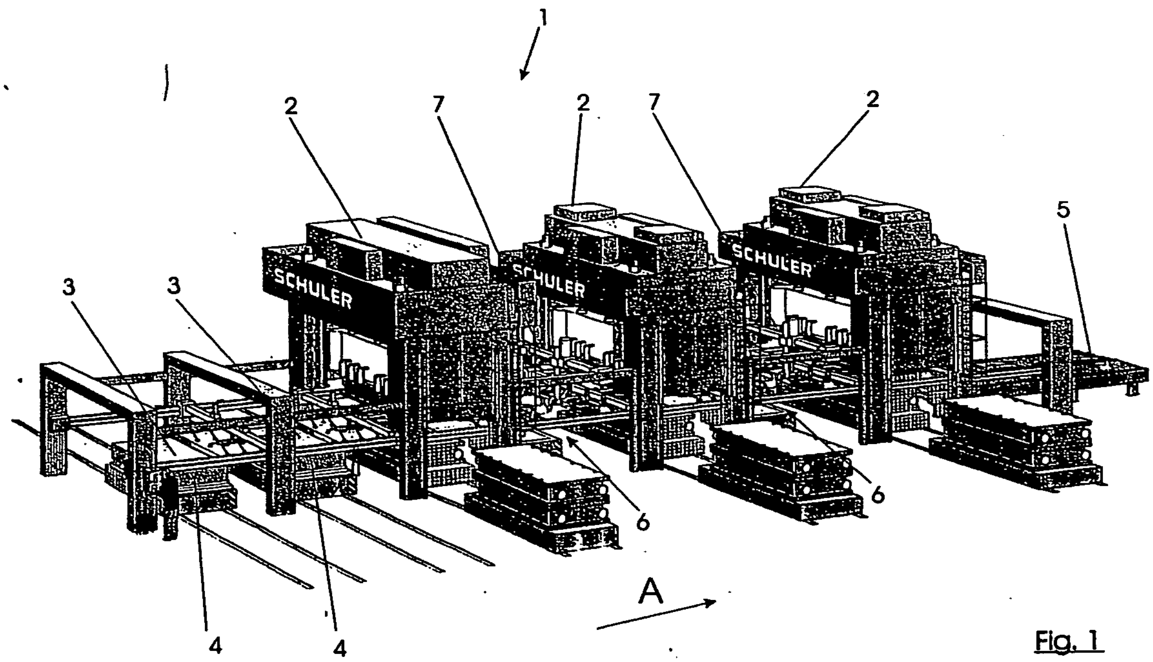

Fig. 1

The transport devices 6 are also known per se and are constructed, for example, as a system of several manipulation robots or as a programmable two-axis system. The transport devices 6 can also be driven by the drive of the forming system 1. The transport direction of the workpieces 5 within the forming system 1 is indicated in the figures by an arrow marked "A". (Specification, Page 7, lines 1-9.)

Additional machining devices 7, by which energy can be fed locally into the workpieces 5, are situated between the forming stations 2 so as to be movable in a path-controlled manner relative to the workpiece. The machining devices 7 may be constructed as laser beam, water jet, plasma jet or sandblasting machining devices 7 or as machining devices 7 for charging electromagnetic energy, for example, by way of induction or conduction, and are in each case provided as a separate station in the forming system 1. (Specification, Page 7, lines 10-17.)

The machining devices 7, e.g., laser beam, form individual separate stations within the forming system 1; are used, like the forming stations 2, for machining the workpieces 5; and are equal to these. Such machining by the laser machining device 7 can be a cutting machining, a welding machining, an application machining, a removal machining or a machining for thermally treating the workpieces 5. (Specification, Page 7, line 18-Page 8, line 2.)

The forming system 1 has a certain cycle in which the workpieces 5 are machined and are ejected or discharged from the last forming station 2. The cycle of the machining of the workpieces 5 is a regular sequence of machining operations. This cycle relates to the complete forming system 1, in which case a certain phase offset may occur between the individual forming stations or the machining stations 7. The machining devices 7 can operate in this cycle of the forming system 1. (Specification, Page 8, lines 3-10.)

Two machining devices 7 may also be arranged in parallel behind one of the forming stations 2. For example, this parallel arrangement is used if the machining of the workpieces 5 by the machining devices 7 requires a fairly long time and nevertheless the same number of workpieces 5 is to be produced as by way of the preceding forming station 2. From the two machining stations 7 arranged in parallel to one another, the workpieces 5 are then again be guided together to the next forming station 2. (Specification, Page 8, lines 11-19.)

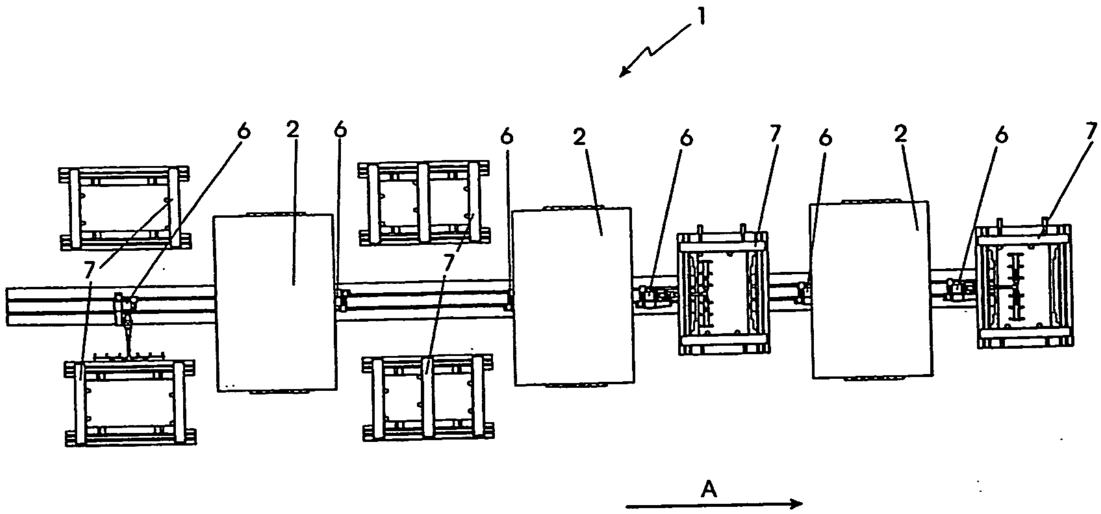

Fig. 3

Figures 4 and 5 below show the integration of a laser machining device 7 into a forming system 1 having two machining stations 7 and one forming station 2. In the first machining device 7, a reinforcing blank 8 is moved into the forming system 1 by a magnetic tape 13 and is applied to a pretreated workpiece 5 by point welding. A transport device transports the workpiece 5 to the next forming station 2, e.g., a drawing station. In this drawing station, a forming machining of the workpiece 5 takes place in a manner known *per se*. (Specification, Page 8, line 20 to Page 9, line 5.)

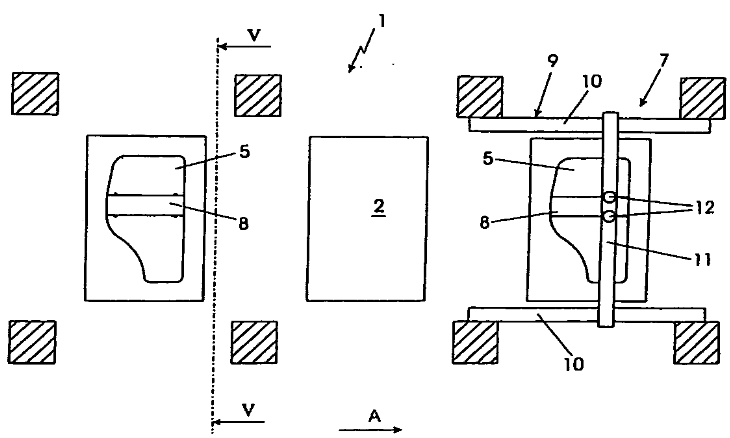

Fig. 4

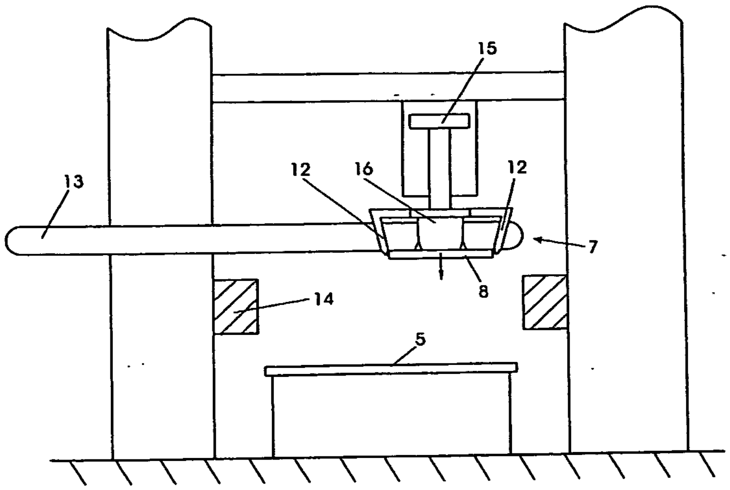

Fig. 5

From there, the workpiece 5 is transported by another transport device 6 to a next laser machining station 7, e.g., one that has a manipulating device 9, specifically a cross table 9 with two longitudinal traverses 10 and one cross traverse 11 extending on the latter. Furthermore, the laser machining device 7 is provided with two machining elements 12 constructed as laser heads. A machining device 7 generally consists of machining elements or machining tools 12 which may therefore also be elements for machining the workpieces 5 by water jets, sandblasting or plasma jets, or machining elements 12 for charging electromagnetic or other types of energy at a certain point into the workpieces 5. (Specification, Page 9, lines 6-20.)

By way of the laser heads 12, the reinforcing blank 8, which had been point-welded on as described above, can be welded to the workpiece 5. For this purpose, the laser heads 12 are moved by the cross table 9 in the desired manner two-dimensionally over the workpiece 5. The laser heads 12 can also be used so that a cutting or other types of machining can be carried out on the workpiece 5. The entire machining range is formed by the relative movement between the laser heads or the machining elements 12 and the surface of the workpiece 5

along defined and programmed paths. This range can therefore also approximately or completely assume the size of the workpiece 5. (Specification, Page 9, line 21 to Page 10, line 7.)

A relative movement takes place between the workpiece 5 and the machining device 7 or the machining element 12 to provide for the machining of the workpieces 5. This relative movement can be achieved either by moving the workpiece 5 or the machining element 12, in the above-described embodiment, the manipulation device 9 providing the relative movement and thus permitting a path-controlled machining. As mentioned above, a path-controlled machining of the workpiece could also be carried out by moving the workpiece 5. From this laser machining device 7, the workpiece 5 is moved in a generally known manner to another forming station 2 arranged behind the laser machining device 7. If the workpiece 5 is finished behind the laser machining device 7, this workpiece 5 can, of course, be conveyed. (Specification, Page 10, lines 8-21.)

The reinforcing blank 8 shown in Figure 5 is guided to the workpiece 5 by an additional feeding device 13, specifically a magnetic tape 13 intervening from the side, whereby these two parts, as described above, can be connected with one another by weld points. Figure 5 also shows, as part of the transport device 6, a stroke beam 14, which is used as a guiding element 14, as well as a stroke device 15 for the reinforcing blank 8 and the laser head or the laser heads 12 which is provided with a vacuum suction device 16 for holding the reinforcing blank 8. The stroke beam 14 can be lifted and lowered in a generally known manner and is used as the guide of cross traverses and on which holding devices are mounted for transporting the workpieces. The stroke device 15 presses the reinforcing

blank 8 onto the workpiece 5, and the laser heads 12 point-weld the blank 8 to the workpiece 5. The control required for this purpose can take place by a control unit of the forming system 1. The guiding element 14 is a stroke beam, but may also be a different type of guiding element 14. (Specification, Page 11, lines 5-24.)

Figure 6 is a top view of another embodiment of integrating one or several of the laser machining devices 7 in the forming system 1. In this embodiment, the metal sheets 3 are fed by the blank loader 4 into the forming system 1. One of the laser machining devices 7 is provided as the first machining station and has the cross table 9 and the two laser heads 12. In contrast to the cross table 9 illustrated in Figure 4, however, the cross table 9 has only one longitudinal traverse 10 and one cross traverse 11. The operation of this laser machining device 7 is similar to the one illustrated in Figure 4, in which the metal sheets 3 are subjected to a forming cut. That is, corners or recesses are cut off the metal sheets in order to produce from, for example, a trapezoidal cut, a form cut blank as the workpiece 5 which is suitable for the subsequent forming operation. As an alternative to the cross table, the manipulation device 8 could be constructed as an overhead gantry. (Specification, Page 11, line 25 to Page 12, line 15.)

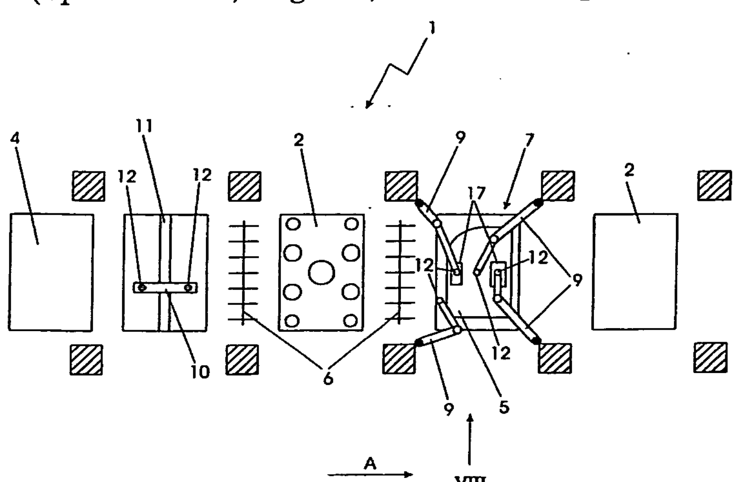

Fig. 6

The transport device 6 transports the workpiece 5 to another forming station 2, specifically to a drawing station. From there, the workpiece 5 arrives, by way of another transport device 6, at the next laser machining device 7. The laser heads 12 are mounted on manipulation devices constructed as swivel arm robots 9. The laser heads 12 are capable of machining the workpiece 5 in the most varied manners, specifically by a cutting machining, a welding machining, an application machining, a removal machining or a machining for a thermal treatment. (Specification, Page 12, lines 16-25.)

The laser heads 12 are used for providing recesses 17 in the workpiece 5. These may, for example, be windows in the doors of motor vehicles. In this process, the laser heads 12 on the robots 9 can be moved completely independently of one another in all three directions in space and can be swivelled by two or more angles. Thus, also workpieces 5 can be machined which have complicated shapes. For example, a bore, can be made such in a workpiece 5 which is to be formed later that, although it is non-circular before the forming, it is exactly round after the forming. Depending on the type of programming of the robots 9, the machining can already be started while the transport device 6 has not yet reached its end position. This results in a corresponding time savings. (Specification, Page 13, lines 1-13.)

From this laser machining device 7, the machined workpiece 5 is then conveyed by another transport device 6 to the next forming station 2. Again, it is to be understood that the laser machining device 7 could also be followed by another laser machining device 7 or any other type of machining device 7 with a local energy feed into the workpieces 5. This machining device could then, for

example, carry out a thermal treatment on the workpieces 5. (Specification, Page 13, lines 14-21.)

Figure 9 illustrates an alternative embodiment of the manipulation device 9 configures as a robot with parallel kinematics. Robots 9 constructed in this manner can reach high moving speeds and have a high rigidity, which permits a very precise machining. As a result, non-planar workpieces 5 can also be machined, as described above, by the machining element 12 mounted on the robot 9. (Specification, Page 14, lines 5-11.)

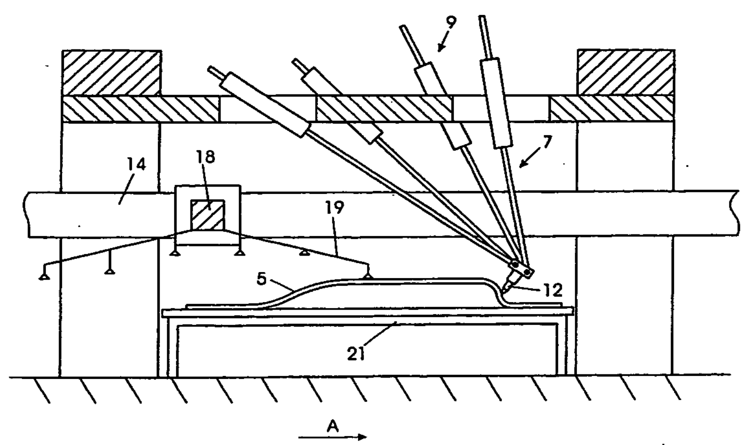

Fig. 9

Figures 10 and 11, below, are additional lateral views of laser machining devices 7, one laser head 12 respectively being mounted on the cross table 9 which again consists of longitudinal traverses 10 and a cross traverse 11. In Figure 10, the cross table 9 is situated above the lifting beams 14 of the transport device 6 for the workpieces 5, on which the suction bridge 18 is also mounted. In contrast, the cross table 9 for the laser heads 12 shown in Figure 11 is arranged below the transport device 6 for the workpieces 5. The cross traverse 11 carrying the laser heads 12 is moved toward the front and toward the rear in

the transport direction for the removal and insertion of the parts. In the embodiment according to Figure 10, the laser head 12 can also be lifted by the stroke beams 14. (Specification, Page 15, lines 12-25.)

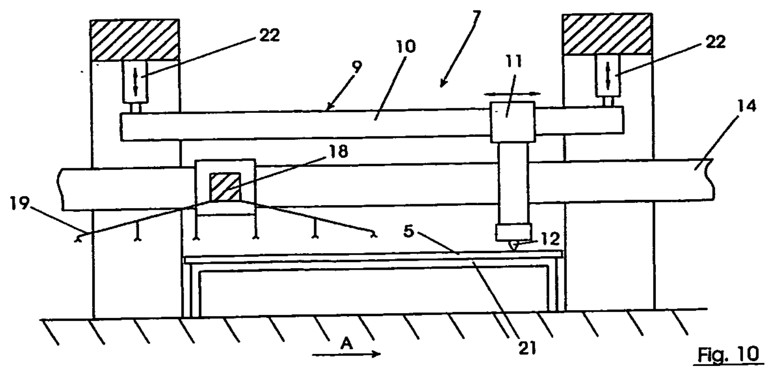

Fig. 10

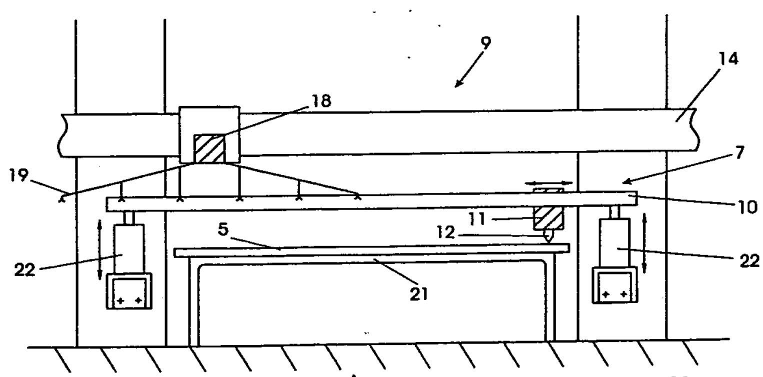

Fig. 11

In both embodiments shown in Figures 10 and 11, the cross tables 9 are provided with stroke elements 22 which permit a three-dimensional machining by the laser heads 12. Such a three-dimensional machining of the workpieces 5 is practical if the workpieces 5 had already been machined previously in a drawing stage and therefore have a three-dimensional shape. The stroke elements 22 are applied in each case to the longitudinal traverses 10. The machining of the workpieces 5 can thus be started by the laser heads 12 already

during the moving-back of the suction bridge 18. The programming of the sequences in the forming system 1 avoids collisions between parts of the transport device 6 and parts of the laser machining device 7. (Specification, Page 16, lines 1-14.)

In addition, the guiding element 14 of the transport device 6 can also be used for guiding the cross traverse carrying the laser heads 12. The cross traverse 11 carrying the laser heads 12 can be articulated and be equipped with a telescope sleeve, in order to permit a diagonal position of the cross traverse 11 and therefore different speeds of the laser heads 12 in the transport direction. This is advantageous for achieving diagonal cuts or welds by the laser heads 12. (Specification, Page 16, lines 15-23.)

Figures 16, 17 and 18 below show integration of the laser machining device 7 directly in a forming tool 26 which is assigned to one of the forming stations 2. In a generally known, the forming tool 26 consists of a tool top part 27, a tool bottom part 28 and a metal sheet holder 29 which, together with the tool top part 27, holds the workpiece 5 to be formed. The metal sheet holder 29 moves downward against the spring pressure of a spring when the tool top part 27 is placed on the workpiece 5 or on the tool bottom part 28.

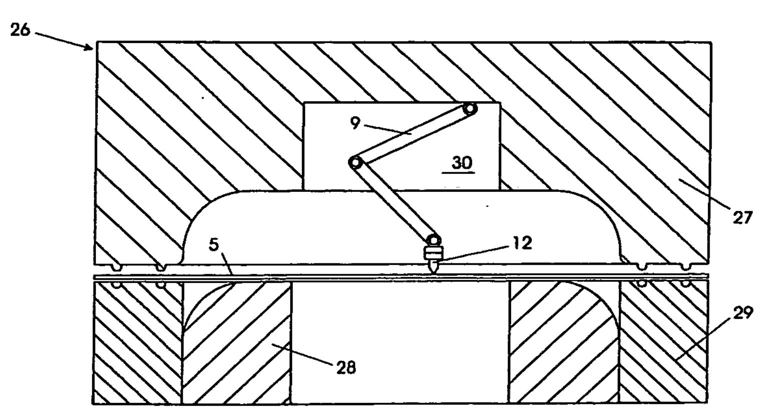

Fig. 16

According to Figure 16, a recess 30 is situated in the tool top part 27. In this recess 30, a manipulation device is arranged which is constructed as a swivel arm robot 9 and has a machining element or laser head 12. The swivel arm robot 9 is capable of moving the laser head 12 along the workpiece 5 such that this workpiece is three-dimensionally machined, for example, cut by the laser head 12 mounted thereon. This is also possible during the formation of the workpiece 5 by the forming tool 26, specifically in that damage to the forming tool 26 is excluded. In this embodiment, it is mainly advantageous that the workpiece 5 is held in the forming tool 26 for preventing an elastic relaxation. In Figure 17, the swivel arm robot 9 is situated in a recess 31 of the tool bottom part 28 and has the same function as the swivel arm robot 9 of Figure 16. (Specification, Page 18, line 20 to Page 19, line 9.)

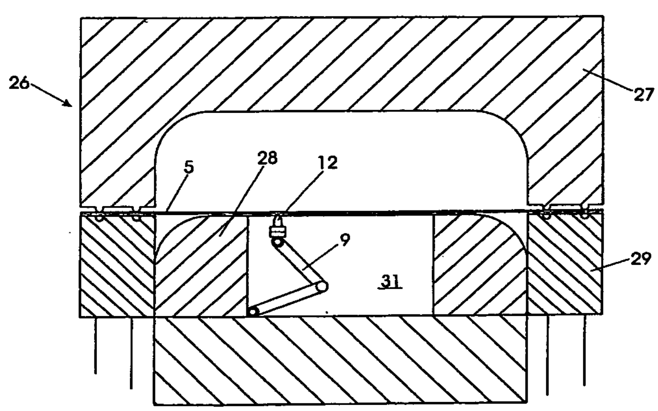

Fig. 17

As seen in Figure 18, bores 32 are arranged in the tool bottom part 28 starting from the recess 31, in which bores 32 one laser head 12 respectively is situated. These laser heads 12 can machine the workpiece 5 during the forming movement in the forming station 2; e.g., subject the workpiece to a thermal treatment and thus replace an otherwise required annealing treatment. As

illustrated, the laser heads 12 can be housed by a swivel arm robot 9 or stationarily in the bore 32. A similar configuration of the laser heads 12 is also contemplated in the tool top part 27. (Specification, Page 19, lines 10-19.)

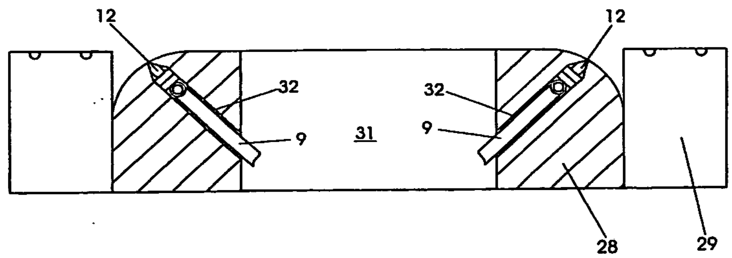

Fig. 18

As with the integration of the laser machining device 7 into the forming tool 26 illustrated above, care is taken that the laser beam emanating from the laser heads 12 does not damage parts of the forming tool 26. (Specification, Page 19, lines 20-24.)

Issues

Six issues are presented in this appeal:

One. Does the final rejection set forth a *prima facie* case of anticipation of Claims 1-8, 10, 11, 16, 17, 18 and 27-30 by Okamoto under 35 USC §102(b)?

Two. Does the final rejection set forth a *prima facie* case of anticipation of Claims 1-8, 10, 17, 18, 23, 25 and 27-30 by EP '799 under 35 USC § 102(b)?

Three. Does the final rejection set forth a *prima facie* case of obviousness based on substantial record evidence under 35 USC § 103(a) of Claims 19-22 by relying on JP '329 alone?

Four. Does the final rejection set forth a *prima facie* case of § 103(a) obviousness based on substantial record evidence of Claims 24 and 26 by relying on EP '799 alone?

Five. Does the final rejection set forth a *prima facie* case of § 103(a) obviousness based on substantial record evidence of Claims 9 and 11-16 by relying on the hypothetical combination of EP '779 and Koser?

Six. Does the final rejection make a convincing showing that to one of ordinary skill in the art Claims 19-24, 27-30 and 6 do not comply with the requirement of § 112, ¶ 2 to point out and claims with reasonable particularity and distinctness the subject matter which appellants regard as their invention?

Appellants submit that the answer to each of these questions is "NO." Also, appellants are hopeful that the after-final amendment will moot, at least in part, Issue **Six** involving § 112, ¶ 2.

Grouping Of Claims

With regard to Issues **One** and **Two**, Claims 1-8, 10, 11, 16, 17, 18 and 27-30 stand together with Claim 1 selected as the claim upon which to decide the appeal.

With regard to Issue **Three**, Claims 19-22 stand together with Claim 19 selected as the claim upon which to decide the appeal.

With regard to Issue **Four**, Claims 24 and 26 stand together with Claim 26 selected as the claim upon which to decide the appeal.

With regard to Issue <u>Five</u>, Claims 9 and 11-16 stand together with Claim 9 selected as the claim upon which to decide the appeal.

<u>Argument</u>

A. The § 112, ¶ 2 Rejection of <u>Claims 19-24, 27-30 and 6</u>

With regard to Claim 6 as well as Claim 19, the final rejection argues that the recitation of the at least one machine element being "configured to be movable" in a certain manner does not set forth means or structure sufficient to support the claimed function. In support of this conclusion, the Examiner observes that the machine element being so configured does not constitute the means capable of creating the movement.

Accepting the Examiner's observation at face value, however, the language is not indefinite or imprecise. The Examiner appears to question about its breadth, something measured in relation to the prior art. That is, if the prior art does not teach such a machine element or establish its obviousness, then it should be patentable. This is not a § 112, ¶ 2 issue.

We trust that the concurrent after-final amendment will eliminate the antecedent basis issue in Claims 23 and 26. In any event, these readily apparent informalities do not rise to the stature of lacking particularity and distinctness.

The final rejection questions the "scope" of the term "local energy feed." It is not, however, the function of the claims to delineate <u>how</u>, as the Examiner suggests, the "energy feed" is "local" relative to the other recited systems structure. The "how" is the function of the written description of the invention in

the Specification whose adequacy has not been called into question in this regard.

A claim is in compliance with the second paragraph of § 112 if it reasonably apprises those of skill in the art of its scope. *In re Warmerdam*, 33 F. 3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). Reasonable apprisal has taken place in the claims on appeal. The fact that the claims do not recite "how" deals with the breadth of the claim, not indefiniteness. In this instance, the Examiner seems to have confused breadth with indefiniteness. Breadth, however, is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971).

The Examiner fails to explain why one skilled in the art reading the claims in light of the specification would be unable to ascertain the scope of the claimed subject matter as it relates to the terminology "local energy feed" which is described at page 7, lines 10 *et seq.* in the Specification.

B. The § 102(b) Rejections

With all due respect, the final rejection wants to have it both ways. On one hand, it asserts that the scope of the "local energy feed" is unclear. On the other hand, it asserts that the Okamoto and EP '799 systems have it. That approach will not sustain a Section 102 rejection.

MPEP § 1208 contemplates that the Examiner shall explain why the rejected claims are anticipated and where the limitations are found in the reference(s). If the Examiner were to have done that, however, logically he could not assert the unclarity of the "local energy feed" terminology.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.), *cert. denied*, 484 U.S. 827 (1987). The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is disclosed by the reference. The rejections under consideration here could not have properly focused on that inquiry in light of the Examiner's professed uncertainty as to claim language. The final rejection does not assert or establish that the Okamoto compound machine tool teaches that it is to be used in a system with a plurality of stations in which at least one machining device has a local energy feed. Instead it is merely alleged that the machining laser 18 is operable to carry out machining with a local energy feed of a workpiece in a forming system having plural stations. In other words, the final rejection does not show how the Okamoto patent contains all of the <u>claimed</u> elements. It merely assumes their existence for purposes of the rejection.

Similarly, EP '799 teaches the use of a laser processor 12 in front of a progressive die 3 in a press machine 1. The final rejection does not establish how the EP '799 document teaches or suggest at least one machining device with a local energy feed arranged as a separate station "within" the forming system. To the contrary, the laser processor 12 is upstream of and outside the press machine 1.

Claims 1-8, 10, 11, 16-18, 23, 25 and 27-30 are not anticipated by either patent document.

C. The § 103 Rejection of Claims 19-22

In rejecting claims under Section 103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Such a rejection must be based on a factual inquiry that is thorough and searching, and must be grounded on objective evidence of record, not the "subtle but powerful attraction of a hindsight-based obviousness." *In re Lee*, 61 USPQ2d 1430. Reasoned findings are critical to the performance of the PTO's functions and later judicial reliance on the PTO's competence. *Id.* Dismissive and conclusory statements such as "obvious duplication of parts" are not substitutes for reasoned findings and objective evidence.

The JP '329 document, in particular Figure 1 as relied upon by the Examiner, does not teach or suggest a plurality of stations and one or more forming tools within which is at least one machining device with a local energy feed as a separate station and movable in multiple planes. The final rejection does not speak to any of these features, but merely states that a laser head is located within the tool bottom part of the forming die system and a manipulation device is provided to move at least part of the laser. The remainder of the final rejection is mere conclusion unsupported by evidence. Even if all the statements were true, however, there would still not be a proper basis for a Section 103 rejection of Claims 19-22.

D. The Section 103 Rejection of Claims 24 and 26

Appellants have already explained above why the EP '799 document is not anticipatory. The "obvious design choice" allegation under Section 103 is the very type of rejection that the Federal Circuit has made clear in *In re Lee, supra,* is totally deficient.

Appellants have explained why the arrangement of the machining elements parallel to one another as set forth in Claim 26 is advantageous. The Examiner has not adduced a shred of evidence to show that this would have been an obvious matter of design choice.

E. The Section 103 Rejection of Claims 9 and 11-16

In looking to combine the pipe bending press features of Koser with the progressive die press of EP '799, it is all too clear that the Examiner has impermissibly drawn from appellants' own teachings and fallen victim to what the Federal Circuit has called "the insidious effect of a hindsight syndrome wherein that which only the inventor has taught is used against its teacher." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

There is absolutely no basis to conclude, as the Examiner concluded, that one of ordinary skill in the art would have been motivated to incorporate any of the features of the single station pipe bending press of Koser in the plural station forming system of the present invention, absent impermissible hindsight. Koser suggests nothing about one or more machining elements mounted on a

manipulation device operatively linked into the plural station forming system, with the device movable in one or more axial directions and swivellable about one ore more axes.

Quite apart from the question of whether it is invention to make something automatic that had previously been manual (a question that is really irrelevant here), the Examiner has not established the factual predicate of obviousness.

Accordingly, reversal of the rejection of Claims 1-30 is solicited.

This Appeal Brief is submitted in triplicate. The Commissioner is authorized to charge the Deposit Account of undersigned, No. 05-1323, in the amount of $320.00 for payment of the required appeal fee. This amount is believed to be correct, however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05-1323 (Docket #852/48375).

Respectfully submitted,

April 1, 2002

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APPENDIX
Claims on Appeal

1. A forming system for forming workpieces, comprising a plurality of stations, at least one forming tool, and at least one machining device with a local energy feed for machining the workpieces is arranged as a separate station within the forming system.

2. The system according to claim 1, wherein the at least one machining device, is configured to carry out a beam machining on the workpieces.

3. The system according to claim 1, wherein the at least one machining device is one of a laser beam machining device, a water jet machining device, a plasma jet machining device, a sandblasting machining device, and a combination thereof.

4. The system according to claim 1, wherein the at least one machining device, is configured to feed electromagnetic energy into the workpieces.

5. The system according to one of claims 1, wherein the at least one machining device is provided with at least one machining element for machining the workpieces.

6. The system according to claim 5, wherein the at least one machining element is configured to be movable in a path-controlled manner with respect to the workpieces.

7. The system according to claim 5, wherein the workpieces are arranged to be movable in a path-controlled manner with respect to the at least one machining element.

8. The system according to claim 5, wherein the at least one machining element is mounted on a manipulation device which is operatively linked into the forming system.

9. The system according to claim 8, wherein the at least one manipulation device is configured to be movable at least in one of at least two axial directions and swivellable about at least one swivelling axis.

10. The system according to claim 8, wherein the at least one manipulation device is programmable.

11. The system according to claim 8, wherein the at least one manipulation device comprises a cross table having at least one longitudinal traverse and at least one cross traverse.

12. The system according to claim 11, wherein the cross traverse is configured to be diagonally adjustable in a guiding plane thereof.

13. The system according to claim 8, wherein the at least one manipulation device is one of a parallel-kinematics robot and a swivel arm robot.

14. The system according to claim 8, wherein the at least one manipulation device comprises a plate-shaped element with at least one linear guide element arranged thereon.

15. The system according to claim 8, wherein the at least one manipulation device comprises an overhead gantry.

16. The system according claim 8, wherein the at least one manipulation device comprises a plurality of manipulation devices configured to be movable independently of one another within a machining device.

17. The system according to claim 5, wherein the at least one machining element is fixedly integrated in the forming system.

18. The system according to claim 5, wherein the at least one machining element is comprises a laser head.

19. A forming system for forming workpieces, comprising a plurality of stations, at least one forming tool, and at least one machining device with a local energy feed for machining the workpieces is configured to be movable in multiple planes and is arranged as a separate station within the forming system, wherein the at least one machining device is provided with at least one machining element for machining the workpieces and is arranged within the at least one forming tool.

20. The system according to claim 19, wherein the at least one machining device is operatively arranged in at least one of a recess of a tool top part and a tool bottom part of the at least one forming tool.

21. The system according to claim 20, wherein the at least one machining device is arranged by way of a manipulation device in or on one of the tool top part and the tool bottom part.

22. The system according to claim 20, wherein the at least one machining device is stationarily arranged in one of the tool top part and the tool bottom part.

23. The system according to claim 1, wherein the forming system comprises a multi-station forming system with plural several forming stations.

24. The system according to claim 23, wherein the at least one machining device is arranged between two forming stations.

25. The system according to claim 1, wherein the workpieces are metal sheets.

26. The system according to claim 1, wherein two or more machining stations are arranged parallel to one another and are operatively connected behind or in front of a common forming station.

27. A process for forming workpieces, comprising the step of machining the workpieces by at least one machining device with a local energy feed in a system cycle, and moving the at least one machine device in multiple planes.

28. The process according to claim 27, wherein for machining of the workpieces, a relative movement takes place between the at least one machining device and the workpieces.

29. The process according to claim 28, wherein the relative movement is carried out in a path-controlled manner.

30. The process according to claim 27, wherein

at least one of a cutting machining, a welding machining, an application machining, a removal machining, and a machining for the thermal treatment of the workpieces is carried out by the at least one machining device.